



South Florida Water Management District

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TDD (561) 697-2574 • www.sfwmd.gov

MGT 08-06F

MEMORANDUM

To: Governing Board members
From: Allen Vann, Inspector General, Office of Inspector General
Date: March 15, 1999
Subject: Audit Letter Report #98-10, Follow-up on the report, "1996 Technology Assessment, Navigating the Future," by Deloitte & Touche Consulting Group

In accordance with our fiscal year 1999 Audit Plan we have completed the enclosed audit letter report, which assesses staff's implementation of the recommendations contained in a technology assessment completed by Deloitte & Touche Consulting Group. The contract for this assessment was issued in January of 1996 at a cost of \$213,620 and was completed with the final report being presented to the Governing Board in June of 1996.

Because the District used the recommendations of the consultant as a guide for upgrading and replacing information systems technology, it was particularly important for us to follow-up on this contract. In the three fiscal years subsequent to the consultant's recommendations, the District budgeted \$11.8 million and expended \$8.9 million through February 1999 for computer hardware, software and the supporting small tools/equipment.

As a result of our follow-up, we concluded that the technology assessment provided a good source of objective professional advice that was subsequently acted upon by management. Only 12 of the 144 recommendations in the consultant's report were not initiated. Our findings and comments were discussed with District staff and a draft report was issued on February 18, 1999 for staff review and comment. Management has concurred with the findings in this report. John Lynch conducted the follow-up review and prepared this report.

Should you have any questions concerning the enclosed report feel free to call me at (561) 687-6220.

Enclosure

C: James Harvey
Michael Slayton
Trevor Campbell

Governing Board:

Michael Collins, *Chairman*
Michael D. Minton, *Vice Chairman*
Mitchell W. Berger

Vera M. Carter
Gerardo B. Fernandez
Patrick J. Gleason

Nicolas J. Gutierrez,
Harkley R. Thornton
Trudi K. Williams

Jr. James Harvey, *Interim Executive Director*
Michael Slayton, *Deputy Executive Director*
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MEMORANDUM

DATE: March 15, 1999
TO: Trevor Campbell, Deputy Executive Director,
Chief Information Officer
FROM: Allen Vann, Inspector General
SUBJECT: Letter Report: Follow-up Report on Recommendations from the
Deloitte & Touche, "1996 Technology Assessment", Audit #98-10

The Office of Inspector General's Information Systems Audit Manager performed this follow-up of the assessment conducted by Deloitte & Touche in 1996. The results of this "letter report" should provide additional support for the viability of the new Information Technology Strategic Plan currently under development by the Information Technology Department.

Background

The District contracted with Arthur Andersen Consulting for an independent external assessment of its use of computer technology in 1989 and again in 1992. The purpose of these assessments was to obtain an objective opinion on the condition and planned use of information technology. Each of these assessments provided a number of recommendations.

Once again, in January 1996 the District contracted with Deloitte & Touche Consulting Group for a fresh assessment of District computer technology.

The \$213,620 contract covered fourteen areas:

1. Geographic information systems & remote sensing,
2. Engineering & scientific systems,
3. Operational systems supporting daily activities & meeting managements informational requirements,
4. Objected oriented database development,
5. External data (internet & world wide web),
6. Delivery system(s) (public access to District data),
7. Computer aided design and drafting (CAAD),
8. Database management systems,
9. Document processing and office automation systems,
10. System security & policy,
11. Technical training program (In-House training),
12. Technical training (Training off-site),
13. Client-server development, and
14. Financial management (LGFS) & human resource (Ross) systems.

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In addition, the contract provided for a review and comment on the previous 1992 assessment.

Deloitte & Touche's report entitled "1996 Technology Assessment, Navigating the Future" was divided into four sections: Systems Assessment, Operations & Technology Assessment, Review of 1992 Technology Assessment Recommendations, and Visioning. In developing the report, the consultants reviewed the background, assessed the technology, and commented on the industry "trends" in the above areas.

The report resulted in 144 basic recommendations. These recommendations were later classified by District staff into ten "groups", staff recommendations were added, and then a priority of critical, high, medium or low were assigned. The recommendations were assigned to responsible areas and target dates were set to "start" and "complete" any necessary activities.

Objective

The objective of our follow-up is to ensure that staff has taken adequate, effective, and timely action toward the implementation of recommendations provided by the external assessment of District's technology and supporting infrastructure.

Scope

Our review was limited to validating the current status of the recommendations contained in the report according to the following status conditions:

- **Complete: (recommendation implemented)**
What steps were taken to implement this recommendation? When was it implemented?
- **In Process: (action(s) have been taken but process not yet completed)**
To date what steps have been taken to comply with this recommendation? What future steps are planned? When will this recommendation be "complete"?
- **On Going: (recommendation has no definable start or finish, continuous)**
What are the on going activities in support of this recommendation?
- **Not Initiated: (no action taken on this recommendation)**
Why was this proposed recommendation not initiated? Are there any future activities planned for this recommendation?

Methodology

In conducting the follow-up the following steps were taken:

1. Review of the Request for Proposal for the Technology Assessment,
2. Review the contract with Deloitte & Touche for the Technology Assessment,
3. Review the "1996 Technology Assessment" final report recommendations,
4. Evaluate the reported current status of the recommendations, and
5. Obtain supporting documentation to validate the assertions as to "current status" of each recommendation.

Findings:

In August 1998, our office was provided with a matrix of the technology assessment recommendations from the District's Information Systems Planning Director. The I.S. Planning Director had classified the recommendations as 40% *Complete*, 23% *In-Process*, 23% *On-Going*, and 14% *Not Initiated*.

In addition to the status and other information, each recommendation in the matrix identifies the responsible individuals assigned to support the activity.

Recommendation Data: Reported						
GROUP**	STATUS:					
	Complete	In-Process	On-Going	Not Initiated	TOTAL	PERCENT
CAD	3	0	2	1	6	4%
FIN	1	2	0	2	5	3%
GIS	2	3	2	4	11	8%
IM	11	11	8	3	33	23%
MOD	0	2	7	2	11	8%
OA	3	6	2	2	13	9%
ORG	9	2	3	1	15	10%
OS	18	3	6	4	31	22%
TR	5	3	2	1	11	8%
WEB	6	1	1	0	8	6%
TOTAL	58	33	33	20	144	100%
PERCENT	40%	23%	23%	14%	100%	

Our follow-up review found that implementation was better than reported. Our interviews with staff members and review of documentation provided resulted in an update to the recommendations matrix. (See attached matrix.) The results of this review is reflected in the "Recommendation Data: Actual" table and shows that District staff has taken positive steps with 92% of the recommendations with 53% *Complete*, 24% *In-Process*, and 15% *On-Going*.

Recommendation Data: Actual						
GROUP**	STATUS:					
	Complete	In-Process	On-Going	Not Initiated	TOTAL	PERCENT
CAD	4	0	1	1	6	4%
FIN	1	4	0	0	5	3%
GIS	4	2	1	4	11	8%
IM	12	13	7	1	33	23%
MOD	2	2	5	2	11	8%
OA	5	5	2	1	13	9%
ORG	11	2	2	0	15	10%
OS	24	3	2	2	31	22%
TR	6	2	2	1	11	8%
WEB	7	1	0	0	8	6%
TOTAL	76	34	22	12	144	100%
PERCENT	53%	24%	15%	8%	100%	

These recommendations included:

- Improvements to the information technology organizational structure,
- Enhanced use of the internet (world wide web),
- Use of video conferencing,
- Selection of a common suite of software tools,
- Increased server storage space,
- Upgrades to the network capacity,
- Hardware lifecycle budget planning,
- Consolidation of hardware platforms,
- Improvements in the in-house training resources, and
- Improvements in the database development environment.

There are twelve recommendations representing 8% that have not been initiated. Eight of the twelve *Not Initiated* recommendations are considered "minor" recommendations with no activity planned for five of these recommendations. Of the four "major" recommendations *Not Initiated*, three were repeated in our Information Systems Security Audit (#98-03) and one is being addressed with an alternate solution.

Conclusion:

The technology assessment provided a good source of objective independent professional review and guidance. The assessment confirmed the District's direction, provided new ideas, and supported changes based on market trends in the use of computer technology as a tool to enhance the staff's ability to excel in their jobs.

The only weakness we identified in the process was insufficient communications of responsibility to staff members and the lack of regular follow-up reports on the progress of implementing recommendations by the project manager. Otherwise, this technology assessment was beneficial to the District.

Attachments: Summary Table and Recommendation Matrix

C: Governing Board
James Harvey
Michael Slayton
Patric Edmondson

AV/JTL

Office of Inspector General, SFWMD

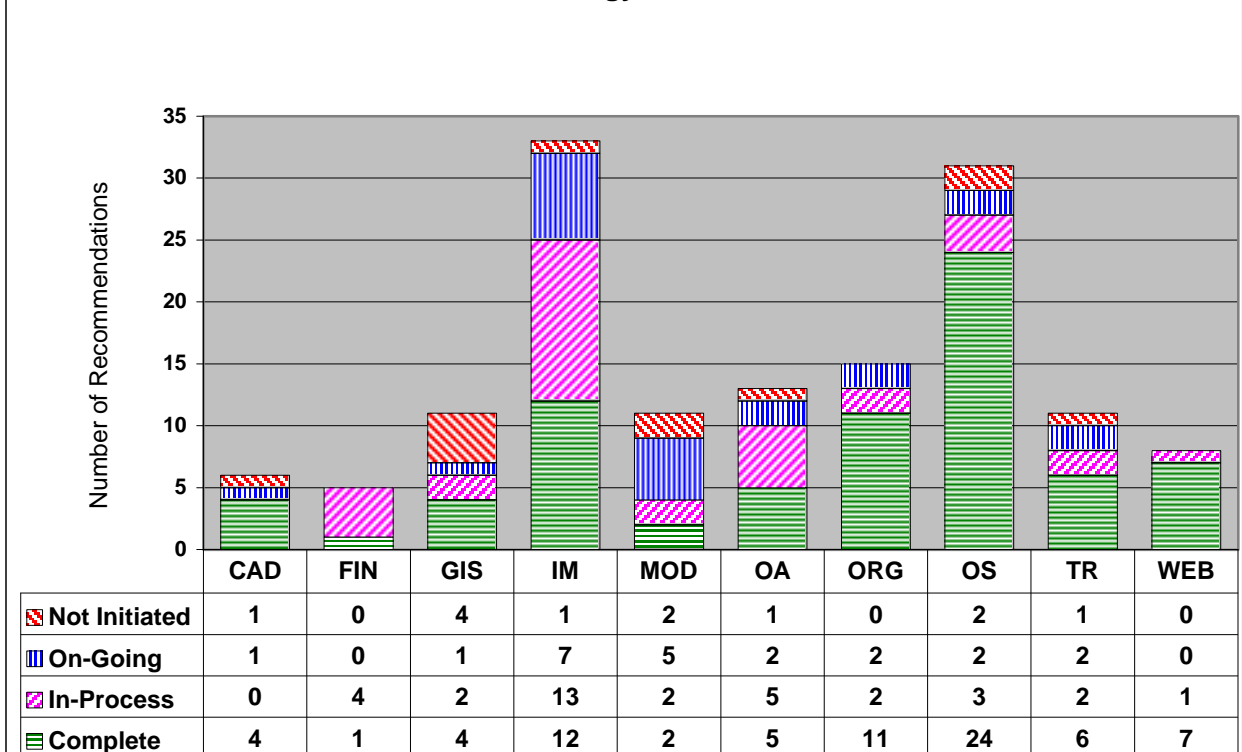
1996 Technology Assessment - Summary Table & Plot

Recommendation Data: Actual						
GROUP**	STATUS:					
	Complete	In-Process	On-Going	Not Initiated	TOTAL	PERCENT
CAD	4	0	1	1	6	4%
FIN	1	4	0	0	5	3%
GIS	4	2	1	4	11	8%
IM	12	13	7	1	33	23%
MOD	2	2	5	2	11	8%
OA	5	5	2	1	13	9%
ORG	11	2	2	0	15	10%
OS	24	3	2	2	31	22%
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TOTAL	76	34	22	12	144	100%
PERCENT	53%	24%	15%	8%	100%	

** GROUP

CAD	AutoCAD
FIN	Financial or Human Resource System
GIS	GIS or Remote Sensing
IM	Information Management
MOD	Modeling and Object Orientation
OA	Office Automation, Document Publishing/Mgmt, Office Suites, Forms
ORG	Organizational
OS	Network, Infrastructure and Operating Systems
TR	Training, Support and Help Desk
WEB	World Wide Web, Internet and Intranet

Status "1996 Technology Assessment" Recommendations



Group **

South Florida Water Management District
1996 Technology Assessment

Recommendation Matrix sorted by Status & Group

**Duplicates deleted as separate recommendations,
(but included in with the recommendation they duplicate).**

GROUPS	
CAD	AutoCAD
FIN	Financial or Human Resource System
GIS	GIS or Remote Sensing
IM	Information Management
MOD	Modeling and Object Orientation
OA	Office Automation, Document Publishing/Mgmt, Office Suites, Forms
ORG	Organizational
OS	Network, Infrastructure and Operating Systems
TR	Training, Support and Help Desk
WEB	World Wide Web, Internet and Intranet

PRIORITY	
1	Critical, must be done as soon as possible
2	High Priority
3	Medium Priority
4	Low Priority

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
CAD	3	58	Reevaluate using high-end PCs for CADD (Major I-52)	Duplicate of #6.	99Q2	00Q1	Bodre	No documentation available. Used FY998 Upgrade funds.	Complete
CAD	2	59	Standardize all District CADD users on AutoCAD 13. (Minor I-52)	Agree. Budgeted in FY97. <i>Note: Currently running Version 14.</i>	97Q2	97Q4	Weaver	Upgrades Installed	Complete
CAD	3	60	Equip the engineers in CLM's Engineering Division with AdCad. (Minor I-52)	Agree and acquire as soon as possible.	97Q1	97Q3	Bodre	PO 800579, PO 703961	Complete
CAD	3	61	Establish integration protocols between surveyors and engineers in CLM to ensure products generated by one can be used for the other's purposes. (Minor I-52)	Agree.	97Q1	97Q3	Bodre	Techs. Moved to Survey Division, solved problem.	Complete
FIN	4	23	Ease the current load on the LGFS system by relaxing requisition requirements that force the Resource Managers to use the system to approve requests as small as \$5.00. (Minor I-16)	Disagree. Found that time saving not consistent with implementation costs.	97Q1	97Q3	Grivjack	Items can be purchased out of "petty cash" for less than cost of processing requisition.	Complete
GIS	3	27	Evaluate the suitability of high-end PCs as the primary GIS support platform at the District. (Major I-23)	Do in conjunction with #6.	98Q1	98Q4	Edmondson	Decision was made to migrate as much as possible of the GIS applications to PC's running NT.	Complete
GIS	3	29	Formalize the coordination and technical support functions of GTAC. (Minor I-23)	Agree.	97Q1	97Q4	Edmondson	Being performed by the GIS Coordinators.	Complete
GIS	3	35	Any additional purchases of satellite data should be accomplished only after fully understanding how it will be used and what the requirements will be to store and process that data. (Minor I-24)	Agree.			Edmondson	Presentation to staff made, Disk Space purchased (FY98), and Optical Storage provided.	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
GIS	2	97	Determine the extent which GIS can augment the current systems by taking advantage of the visualization, database, spatial analysis and network & routing functionality. (Major I-79)	Agree.	96Q3	98Q1	Vyhnaneck	A proto-type was created for the evaluation in Q3 of 96. A second proto-type was created in Q1 of 98. The evaluation of both proto-types indicates that GIS will provide added benefit and functionality, especially when used in Web based Operator Interfaces.	Complete
IM	2	24	Reevaluate the volume of information being kept on-line. Current volumes tend to overload the VAX periodically and significantly impact system performance. Establish clear policies regarding what data is really needed and how long it will be kept. (Minor I-16)	Agree. <i>Note: recommendation applies to LGFS and Ross systems.</i>	97Q3	98Q1	Edmondson	Needs of users was considered in adding additional storage for the VAX LGFS/Ross applications. Historic data is kept on-line with the oldest data rolled off to tape as a new FY starts.	Complete
IM	3	43	Investigate ways to give selected outside agencies limited update capabilities to District databases and models. (Minor I-30)	Do in conjunction with #112. <i>Note: WRE working with Proj. Mgt. Div. & Team to provide access.</i>	97Q4	98Q3	Turcotte	Oracle Web Server Software acquired for external access.	Complete
IM	3	47	Develop a plan to move Oracle developers from existing UNIX workstations to high-end PCs. (Major I-38)	Agree	97Q1	97Q4	Edmondson	Plan has been developed	Complete
IM	2	49	Evaluate and procure database administration tools to enhance the DBAs= support capabilities. (Minor I-39)	Agree.	96Q4	97Q3	Edmondson	District has purchase tools for this from Platinum Technology, Inc.	Complete
IM	2	50	Continue with the current migration to the new Oracle Developer 2000 tools, which	Agree. Develop migration plan to get to	96Q4	97Q1	Brown	* Standardized with Dev. 2000 prior to FY97	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			are owned by the District. (Minor I-39)	the tools of Developer 2000.		Part of Standard loadset		* Staff using, will migrate to Oracle Developer (New) * Obtained as free Upgrade in October 96.	
IM	2	51	Evaluate the use of Designer 2000, Oracle's PC-based CASE tool.(Minor I-39)	Agree.	96Q3	97Q3	Edmondson	Designer 2000 purchased.	Complete
IM	3	53	Develop an access method to the District's databases that prevents users from logging on directly to a database server. (Minor I-39)	Agree.	96Q3	97Q3	Edmondson	District has adopted the Client Server model approach.	Complete
IM	3	65	Enhance the data sharing between the field survey crews and remote offices and the engineers and surveyors at the District's main office. (Minor I-52)	Agree.	97Q1	97Q2	Bodre	No documentation available.	Complete
IM	3	101	Continue the current implementation [CMMS] as scheduled. (Major I-81)	Agree, no change required.	96Q1	97Q1	Edwards	Contract with amendments complete and closed.	Complete
IM	1	102	Continue to assess the risks associated with the [CMMS] project's implementation and aggressive time line. (Major I-81)	Agree. OMD CMMS went into production 96Q4. <i>Note: Post-implementation audit planned for FY99.</i>	97Q1	99Q1	Edwards	Stabilized on Series 7 version 1.12 for implementation with VT terminals. (Plan for future migration to GUI version.)	Complete
IM	3	117	Accountability for District PCs must be increased by formalizing the process for their removal from District premises. (Major I-91)	Agree. <i>Note: State law now provides for donation of surplus equipment to "not for profit" organizations and schools.</i>	97Q1	97Q1	Edmondson	Staff follows District policy on disposal of surplus property.	Complete
IM	2	164	Build on the District's current Data	Agree. Make available	98Q4	99Q2	Brown	* Information gathering	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			Directory booklet to develop an up-to-date data dictionary. (Major IV-11)	through a Web Page. <i>NOTE: actual reference is "Data Directory".</i>				done.(Draft) * Final In print shop. * Next step to Web pages.	
MOD	3	95	Examine the current object-oriented development environment to determine its long-term viability. Investigate other object-oriented development tools to compare their functionality and stability to the tools currently being used. (Major I-79)	Agree.	98Q4	99Q1	Vyhnaneck	Operations Division Programming staff completed a survey on the current state of this technology in all District Departments, the desired state, and developed a CASE Selection Criteria for future acquisitions.	Complete
MOD	3	96	Investigate the benefits of using an object-oriented database in conjunction with the object-oriented applications currently under development. (Major I-79)	Agree.	98Q4	99Q1	Vyhnaneck	During development of the CASE Selection Criteria document, it was determined that due to rapidly changing industry environments, as well as, the Division's needs, it is premature to select a product from a specific vendor at this time. This technology will be incorporated in future systems implementations.	Complete
OA	2	68	Select, procure, and implement a single office productivity suite for District-wide use. (Major I-58) 159. Reevaluate office automation software to determine: What the components of office automation at the District should be (e.g., should a web browser be a component of office automation in the future?).	Agree. Budgeted in FY97. Take #73 and #82 into consideration.	96Q4	97Q3	Brown	* Implemented MS Office 97. (With training held District-Wide.) * At the same time Upgraded from Win 3.1 to Win 95. (Added a standard Web Browser, Netscape.)	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			<p>WordPerfect the best word-processing solution or should Microsoft Word be considered?). Which software components should be part of the standard load set (i.e., installed on every PC) and which should be floating licenses. (Major IV-8)</p> <p>160. Consolidate the District's existing operating systems and software applications based on current needs and vendor capabilities. (Major IV-8)</p>						
OA	2	73	Evaluate an appropriate desktop publishing solution (e.g., Frame or Interleaf) that can provide the robust publishing technology required at the District. (Major I-64)	Agree.	96Q4	97Q4	Hall	Adopted Frame Software as standard, purchases approx. 22 copies and held training classes.	Complete
OA	3	75	The District should evaluate 600 dpi solutions to meet its output and reproduction requirements. (Major I-64)	Agree.	97Q2	98Q2	Edmondson	New purchases are all 600dpi or greater.	Complete
OA	2	78	<p>Continue with the next phase of the planned electronic forms project which is to prototype the chosen forms software. The objective of this stage is to prove the feasibility of a District-wide forms implementation and/or define the limits of this solution. (Major I-68)</p> <p>79. Revisit the evaluation of the two electronic forms software packages and update if appropriate. (Minor I-68)</p> <p>80. Use the findings of the prototype to determine how to proceed for District-wide implementation. (Minor I-68)</p>	Agree. Pilots performed but plan to complete this item has not been developed.	97Q2	97Q4	Hall	<p>* Tested prototype with Groupwise software. (Does not work with our new Netscape Communicator software.)</p> <p>* Included in New I.S. Strategic Plan.</p>	Complete
OA	2	83	Develop a pilot project that will demonstrate the benefits of using imaging	Agree. Prototype in FY97 with EXO.	97Q1	98Q2	Ricketts	Prototype was developed using the executive office correspondence system.	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			and workflow technologies. (Major I-73)	Continue to evaluate.				This pilot project was tested successfully until the change to the new district mail system broke the association to the imaging software and the pilot was then discontinued.	
ORG	1	1	Adoption of a CIO. (Major 6) 129. Establishment of a Chief Information Officer (CIO) reporting to the Executive Officer would help to provide the guidance for the District. The CIO would serve as the IS visionary for the District. Under the CIO's direction, IS planning, guidelines and standards would be developed and uniformly administered throughout the District. (Major II-19) 151. Install a Chief Information Officer (CIO) at the executive level. (Major IV-4)	Agree.	96Q4	96Q4	EXO/ Campbell	* Completed on schedule with CIO added at Dept. Director level in Organization Chart. * Position, CIO, is now part of Executive Office with Deputy Executive Director.	Complete
ORG	1	3	ISO Reporting to the CIO. (Major 7) 152. Elevate the Information Systems Office within the organization, and have this office report directly to the CIO. (Major IV-5) 139. The ISO should be moved from its current position as an office under Administration and Finance to an office level position reporting directly to the Executive Office, under the leadership of the CIO. (Major II-28)	Agree.	96Q4	96Q4	EXO/ Campbell	* Initially move of ISO to new Office of Enterprise Engineering with Director as CIO reporting directly to Executive Office. * Currently new Information Technology Department director reports to Deputy Executive Director/CIO in Executive Office.	Complete
ORG	4	42	Assign and fund an External Access Administrator or Web Administrator to act as the District coordinator of external	Agree.	97Q1	97Q1	Brown	District has a full time Webmaster. (New job with	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			access issues. (Minor I-30)					District job description.)	
ORG	1	133	Each department in the District should have a dedicated individual who acts as a liaison between that department and the Information Systems Organization (ISO). These positions will be the Information Systems Liaison (ISL) and will be trained to help support the information technology needs of their department. (Major II-24) 153. Formalize, create and install an Information Systems Liaison (ISL) position. (Major IV-5)	Agree. CLM, ERD, PLN, REG, & WRE now have an ISL.	97Q1	98Q4	Hall	Each Department has completed this task. (Last position requirement was completed with a position transfer from OEE to Regulation Dept.)	Complete
ORG	2	134	The ISL should have an IS background. Their job description should be developed jointly by ISO and the ISL's department. (Major II-24)	Agree. Initiate after #133.	97Q1	97Q2	Hall	Job description complete. (On HR server with other District job descriptions.)	Complete
ORG	2	135	Roles and responsibilities for the ISL must be developed jointly to ensure buy-in from both the ISO and the Department, which is vital to allowing the ISL to perform his/her job function successfully. (Major II-25)	Agree. Initiate after #133.	97Q1	97Q2	Hall	This was considered in the job description development process.	Complete
ORG	2	136	The ISO must form partnering relationships with each Department. (Major II-25)	Agree.	97Q1	97Q4	Hall	Special committee with CIO was formed to meet with Departments to establish relationship and eliminate issues.	Complete
ORG	2	137	The ISO must develop a partnership with the ISLs and include them in joint decision-making activities which will affect their user Departments. (Major II-25)	Agree. Initiate after #133.	97Q1	97Q4	Brown	* ISL job descriptions done. * Regular monthly meetings with ISL's. * ISL's included in Projects.	Complete
ORG	3	140	The Oracle Database Administrators	Agree.		97Q1	Edmondson	Included in the	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			(DBAs) should be more closely connected with computer support. (Major II-28)					reorganization of Information Systems under the Office of Enterprise Engineering.	
ORG	2	141	The Help Desk and Technical Training functions should be more closely tied (i.e., report to the same individual). (Major II-29)	Agree.	97Q1	97Q1	Weaver	RE-Organization of I.S. functions under OEE. Moved training and help desk into same division.	Complete
ORG	1	143	The ISO should fill all approved positions within its current structure. (Major II-29)	Agree but this applies to all Information System positions District-wide. <i>Note: This should really be considered an on going priority issue.</i>	96Q3	98Q4	Hall	All positions were filled during FY 98 (but new openings have occurred since then.)	Complete
OS	1	4	Hardware Replacement. (Major 7)	Agree.	96Q4	97Q1	Edmondson	The District utilizes a PC lifecycle model as part of the budget development process. (Also used to best redeploy existing systems.)	Complete
OS	2	5	Oracle Development Environment Upgrading. (Major 7)	Agree.	96Q3	97Q3	Edmondson	Installed Oracle 7 and the supporting tools.	Complete
OS	3	6	Evaluate High-end PCs in Place of UNIX Workstations. (Major 7) 26. Accelerate the procurement of high-end PCs and appropriate GIS software for use in departments in which GIS utilization would result in increased efficiency or new capabilities. (Major I-23) 122. The District should conduct an analysis to determine when high-end PC's can be used in place of UNIX workstations.	Agree. <i>Note: Evaluate after PC Operating System is selected and implemented.</i>	97Q2	98Q3	Edmondson	Completed as part of the budget development process.	Complete

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			(Major II-10)						
OS	2	10	Explore data management solutions including near-line data storage options, and implement an District-wide archiving system that can store models and datasets off-line, while still permitting easy access for modelers. (Major I-9)	Agree. (Budget for FY97 and FY98.)	96Q4	97Q3	Edmondson	Purchased increased storage capacity for existing modeling servers and added an additional new modeling server.	Complete
OS	3	11	Procure laptop PCs appropriate for field use in collecting data and maintaining field equipment. Implement remote downloading capabilities for field crews to send collected data to the processing units. (Major I-9) 17. Coordinate data collectors=needs and IS expertise to better support field requirements for ruggedized field equipment. Develop a cost-benefit analysis for District procurement of fault-tolerant PCs for field use as opposed to standard configuration laptops. (Minor I-10)	Agree. Procurement complete. Initiate file upload in FY97.	96Q3	98Q2	Edmondson	Purchased through the budget process	Complete
OS	3	16	Evaluate DTA's need for a non-UNIX multitasking operating system to meet its specialized needs (such as running ARDAMS). (Minor I-10)	Agree.		96Q3	Edmondson	Currently using Windows 95 and Windows NT in DTA.	Complete
OS	2	36	Procure smaller, less expensive plotters to supplement existing Versatec plotters. (Minor I-24)	Agree. (Budgeted in FY96 & FY97.)	96Q4	97Q1	Edmondson	Purchased through the budget process. (HP 755 plotters.)	Complete
OS	2	46	Evaluate and, based on the evaluation, procure dedicated UNIX database servers in order to address performance, development, standardization, and support issues. (Major I-38)	Agree.	96Q4	97Q3	Edmondson	Purchased through the budget process	Complete

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OS	1	48	Increase hard disk capacity on development servers to facilitate complete application development in a single environment. (Minor I-38)	Agree.	96Q4	98Q1	Edmondson	Additional has been added in the development environments.	Complete
OS	2	67	Evaluate the benefits of reducing the number of platform types the District operates and establish a policy for discarding older hardware that is not compatible with recent releases of common office software. (Major I-58) 158. Continue consolidating the District's existing hardware platforms (Intel PC, Sun Workstation, DEC Mini and Apple PC) to as few platforms as operationally possible. (Major IV-7)	Agree.	98Q1	98Q2	Hall	* Reducing number of Unix machines completed each year. * Migration is toward window NT systems as replacement common platform.	Complete
OS	2	69	Analyze the District's network structure to determine if NFS is the best route to filling the District's interconnectivity needs. (Major I-58)	Agree. (Will be included in O/S selection in FY97.)	96Q4	97Q1	Edmondson	Selected TCP/IP stack as solution.	Complete
OS	2	72	Evaluate video conferencing technologies between District locations. (Minor I-58)	Agree. Consider in PBX replacement planning or possible across the Internet.	96Q4	98Q4	Brown	* Evaluated & selected system. * Implemented at Service Centers. * Expanding next to Field Stations.	Complete
OS	3	103	Evaluate, procure and implement an Intel based EOC software solution. (Major I-83)	Agree.	96Q4	98Q3	Edmondson	Purchase software package for emergency operations call EM2000. (This is the same software that the State of Florida uses.)	Complete
OS	1	104	Upgrade the computers in the PC training	Agree.	96Q4	96Q4	Edmondson	Completed with budgeted purchases of upgraded	Complete

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			facility. (Major I-87)	<i>Note: Also, replaced Unix systems with upgraded PC in what was the Unix training room.</i>				equipment.	
OS	2	116	Develop a plan to update virus detection software on all PCs and Macintoshes at least once a year or more often if appropriate for specific systems. (Major I-91)	Agree.	97Q1	97Q3	Weaver	Software upgrades to V-shield are done through the network on a regular basis. (Approx. every 3 months.)	Complete
OS	2	118	Evaluate and select a desktop PC operating system that has security-ready capabilities. (Major I-91)	Agree. (This will be included in the Operating System selection budgeted in FY97.)	96Q4	97Q1	Edmondson	Windows 95 was selected for PC's and includes network, system, and file security features.	Complete
OS	1	119	Turn on password requirement when logging from one system to another. (Major I-92)	Agree.	97Q1	97Q4	Edmondson	No longer use "trusted host" to log from one Unix system to another.	Complete
OS	2	124	Form a District team to perform Life Cycle Planning of Information Technology. The team should include key individuals from user departments. The team should analyze and segment the end-user environment according to current and future requirements and determine system and application architecture standards and roll-out schedules. (Major II-12) <i>56. Maintain a computer replacement lifecycle which ensures that the District will be able to sustain client/server technologies. (Major I-47)</i> <i>57. Standardization of the general computer</i>	Create a Life Cycle Team.	96Q3	96Q3	Hall	Completed as part of the FY97 budget process. (This is repeated each year as part of the budget process development.)	Complete

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			<p>environment to enhance and support the client/server technology. (Minor I-47)</p> <p>121. As outlined in the <i>Personal Computer Replacement Lifecycle</i> methodology, the District should purchase Power Level machines, move the displaced machines from the Power Level to the Standard Level 1 Configuration, and move the displaced machines from the Standard Configuration Level 1 level to the Standard Configuration Level 2 level. All obsolete machines should be replaced with new technology. (Major II-10)</p> <p>128. A retirement and disposal strategy should be an explicit part of life cycle management and should specify planned retirement and refresh rates according to user base segmentation. (Major II-13)</p> <p>156. Establish a standard lifecycle for desktop hardware. (Major IV-6)</p>						
OS	2	144	<p>Limit the use of NFS at the District. Groupwise uses NFS for transportation over the network. This technology is causing the majority of traffic on the network. (Major II-31)</p> <p>161. Eliminate the use of PC-NFS for network applications for Intel-based computer hardware. (Major IV-9)</p>	Agree. Evaluate during Operating System selection.	96Q4	97Q4	Hall	Replaced with Microsoft TCP Stack on client side and Somba (Unix) on server side.	Complete
OS	2	145	Review Novell's future direction with respect to Groupwise. (Major II-31)	Do in conjunction with #144.	97Q1	97Q4	Hall	Evaluated products and replaced Groupwise with Netscape Communicator.	Complete
OS	2	146	Investigate Windows NT as a network alternative to service the PC environment.	Do in conjunction with	96Q4	97Q4	Brown	* Using NT servers for file	Complete

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			(Major II-31)	#69. <i>Note: Also replacing servers at service centers with NT. Moving data warehouse function to these servers. (GIS too.)</i>				and print services. * Network authentication through NT servers.	
OS	2	149	Investigate applicability of next generation networking technologies such as switched hubs and Fast Ethernet to provide higher network bandwidth on demand. (Major II-32)	Agree.	96Q4	99Q1	Edmondson	Currently implementing "Gigabit" network technology.	Complete
OS	1	150	Determine future [network] requirements of District processes to assist in determining future technological trends. (Major II-32)	Agree.	97Q2	98Q2	Hall	Budgeted for requirements in March 1997, selected upgrade in October 1997, and awarded to vendor in June 1998.	Complete
OS	2	157	Procure and utilize, on an on-going basis, the use of network and other system administration tools that will facilitate the proper sizing of network components, servers and other hardware. (Major IV-7)	Agree.	97Q2	97Q4	Edmondson	Currently using tools such as openview, optivity, BGS, platinum, polycenter, . . .	Complete
TR	2	33	Continue the well established in-house training program. (Minor I-24)	Agree.			Weaver	Currently division staff as well as "CAT" instructors are used as a District training resource. Also, utilize contract trainers for special packages or major projects.	Complete
TR	3	70	Establish self-paced training approaches to allow users to develop their skill levels to their own specific needs. (Minor I-58)	Agree.	97Q2	98Q4	Weaver	Re-establish with the implementation of the self-study learning lab.	Complete

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
TR	2	76	Revitalize the technical support necessary to maintain the health of the publishing environment. Subject Matter Experts should be identified from among the District's users to assist in providing end-user support and training. (Minor I-64)	Agree.	96Q4	97Q2	Edmondson	Purchased standard software package (Frame), provided training, and have potential for support through District's "CAT" trainers	Complete
TR	3	106	Develop a method for collecting employee training requirements so that TSD can predict training needs more accurately and continue to provide economies through on-site training. (Minor I-88)	Agree.	97Q2	97Q4	Weaver	Periodically "poll" training coordinators for current needs and for budget training projections. Use the District's Ross system for outstanding training requests on a "wait" list.	Complete
TR	3	107	Maintain the current Computer Application Training Program. (Minor I-88)	Agree. No action required.			Weaver	Maintaining training program.	Complete
TR	3	108	Evaluate products which can help students measure their performance after training. (Minor I-88)	Agree.	97Q2	97Q3	Weaver	Ziff-Davis provides skill assessment software to the District on CD via subscription.	Complete
WEB	2	7	World Wide Web Access for Employees and Constituents. (Major 8) 40. Provide WWW and FTP access to District employees who demonstrate a need for this access. (Major I-30)	Agree.	96Q3	96Q4	Edmondson	Completed with installation and training on use of Netscape software.	Complete
WEB	3	15	Evaluate options for coordinating of modeling activities via the Internet/World Wide Web including model documentation, discussion groups, and home pages. (Minor I-10)	Agree. Newsgroups and web pages are being used.	96Q4	98Q4	Brown	* Newsgroups added for Major subject areas. (See Netscape or attached.) * Web page for etiquette and group description. (See Web page or attached.)	Complete
WEB	2	39	Evaluate whether to design, develop, and deploy a District FTP server that would	Agree. This was evaluated and no	97Q2	97Q4	Edmondson	Added FTP to xweb server to provide support for staff	Complete

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			enable efficient external access to large datasets and query capability to extract data from District databases. (Major I-29)	additional effort planned.				needs.	
WEB	3	44	Track current access requests and use them as a foundation for determining which data should be made available on-line. (Minor I-30)	Agree.	97Q1	98Q2	Brown	Acquired a package called "Web Trends" to analyze access log and report. (See web page or attached.)	Complete
WEB	3	111	Guidelines for access and use of the Internet need to be developed and advertised to all employees. Access to the Internet should be encouraged and on-site classes on its usage scheduled. (Major I-91)	Agree. <i>Note: Internet usage included in new District Computer Policy and handbook. (See item # 120.)</i>	96Q3	96Q4	Weaver	Guidelines provided on Initial Iweb page as "District Internet Guidelines."	Complete
WEB	2	162	Implement an external WWW Server (Internet) and an internal WWW Server (Intranet). (Major IV-10)	Agree.	96Q4	97Q1	Edmondson	Purchased two servers (Sun-netra's) for this purpose.	Complete
WEB	3	168	Identify, develop and maintain cooperative relationships with other federal, state and local governments and augment data sharing using the Internet and other mechanisms. (Major IV-12)	Agree. <i>Note: Maintenance Agreements reviewed and renewed annually.</i>			Turcotte	See # 169 and # 43. (Plus FTP and REMO Server.)	Complete
FIN	2	19	Develop and deploy more effective and accessible reporting tools for LGFS and ROSS. (Major I-16)	Agree. Holding on release of new Ross client server. AMS Advantage to be budgeted in FY00.	99Q3	00Q4	Grivjack	See recommendation # 21	In Process
FIN	3	20	Migrate to a client/server version of LGFS and ROSS in order to maintain support provided by the vendors and move to the dominant server environment (UNIX). (Major I-16)	Agree with the concept but it may be preferable to look at the products in the marketplace rather than just bring over LGFS and Ross.	99Q3	00Q4	Grivjack	See recommendation # 21	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			81. Investigate the feasibility of migrating to the client/server versions of LGFS and ROSS so that better end-user tools and friendly, intuitive forms can be provided to the end-users. (Minor I-68)						
FIN	1	21	Reevaluate the District's decision to use four separate financial reporting systems (LGFS, ROSS, Oracle budgeting and contract administration). (Minor I-16)	Agree. Each system when converted will have it's data stored in Oracle.	96Q4	01Q1	Grivjack	Future of Ross and LGFS under review for migration or replacement.	In Process
FIN	2	22	Reconsider the degree of customization of both LGFS and ROSS, especially ROSS. (Minor I-16)	Agree. Ross upgrade from V5.5 to V5.6 had each customer review need for customization. A move to Oracle base versions will not in itself eliminate the need for all customizations.	97Q1	00Q3	Grivjack	* All customization of LGFS are vendor supported and maintained. * Since Ross is already a heavily customized system, there are no plans to discontinue the existing customizations.	In Process
GIS	3	31	Continue to develop ArcOracle and expand its capabilities to other District databases such as LAMIS. (Minor I-23)	Agree.	97Q1	99Q3	Edmondson	Contract in place for this ARC/Oracle application in place with Diba Consulting.	In Process
GIS	2	34	"Secondary" or project related coverages should be cataloged and indexed for future projects. The current GIS data dictionary developed in Oracle should be more fully utilized and made more user-friendly by the use of a graphical user interface (GUI). (Minor I-24)	Agree.	98Q4	99Q4	Edmondson	In final stages of GIS data inventory. Data is being put on CD. Then, staff will focus on database for tracking spatial data inventory.	In Process
IM	2	41	Develop and implement policies to manage external access to District data. (Minor I-30)	Do in conjunction with #112.	96Q1	99Q3	Hall	Included in New I.S. Policy. Policy to be adopted in April 1999.	In Process
IM	2	45	Develop policies concerning appropriate use of this [external access to District data]	Do in conjunction with	96Q1	99Q3	Hall	Included in New I.S. Policy.	In Process

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			resource. (Minor I-30)	#112.				Policy to be adopted in April 1999.	
IM	2	52	Identify and implement a user-friendly, ad-hoc query tool that will reduce the users' reliance on systems professionals for accessing/extracting information from databases. (Minor I-39)	Agree. Discoverer selected, training in Aug. of 1998.	97Q3	99Q2	Brown	* Discover selected training held in August 98 * Building "end user layer"	In Process
IM	3	54	Develop a common user interface to District databases through the use of GUI-based forms that execute on the users' hardware. (Minor I-39)	Agree. <i>Note: Delayed by Y2K database conversions of "text" screen databases.</i>	96Q3	?	Brown	* Have implemented the GUI based forms 4.5 * Not all applications running in GUI mode. * All new applications GUI.	In Process
IM	3	55	IS developers should use standard testing and source code control software. (Minor I-39)	Agree. FY99 budget contains Testing and Source Code Control Software. (SCCS) <i>Note: two groups are using SCCS on UNIX.</i>	97Q2	99Q2	Brown	Plan to start in FY99Q2 to evaluate & Select. This will be PC based with GUI test tools.	In Process
IM	2	110	Each department should prepare a data security and recovery plan to guard against the loss of valuable data while still permitting access to this data. (Major I-91)	Agree.	99Q1	99Q4	Edmondson	Planning to evaluate and select a centralized backup environment for PC's District-wide,	In Process
IM	3	112	The District's existing data security policies should be expanded to exploit new and advanced technologies while defining procedures for their use and access. (Major I-91)	Agree.	96Q1	99Q3	Hall	Included in New I.S. Policy. Policy to be adopted in April 1999.	In Process
IM	2	114	A single security convention for access to all District systems should be adopted. Different conventions are used on the financial and ROSS systems that should be	Agree. <i>Note: See I.S. Security Audit #98-03</i>	97Q2	00Q2	Edmondson	The staff is evaluating and monitoring the "market" for possible "single sign on" solutions.	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			adopted to the existing UNIX, Network Services, Remote Access, VAX1 and Telemetry convention. (Major I-91)	<i>recommendation 15.</i>					
IM	3	120	Users should be required to sign a document that outlines each individual's responsibilities for use/misuse of the District's computers, data, networks, and information systems. (Major I-92)	Evaluate and implement results of evaluation.	97Q1	99Q4	Hall	Summary of New I.S. Policy in New Employee Handbook. Employees will be required to sign for new Handbook.	In Process
IM	2	132	A District-wide, as opposed to department-wide, technology model, which incorporates all technology in the District regardless of Department, should be developed and implemented in order to take advantage of associated economies and to ensure the consistency of IS throughout the District. (Major II-21)	Agree, this will help break down the walls between departments.		99Q2	Hall	District I.S. Strategic Plan Currently under development will include this.	In Process
IM	2	155	Develop a District-wide <i>technology model</i> [as is and to be] which views the organization as a whole as opposed to an entity comprised of disparate departments. (Major IV-5)	Do in conjunction with #132		99Q2	Hall	District I.S. Strategic Plan Currently under development will include this.	In Process
IM	2	163	Continue to redesign and model the District's scientific databases. Create a shared data model of the scientific databases. Establish resources and commitment to maintain the data model after implementation. (Major IV-11)	Agree. WRE is redesigning Organic DB by 98Q4, Groundwater by 99Q2, and other Depts. by 99Q4. <i>Note: Moving toward District-wide data model. Will develop support after Y2K project complete.</i>	98Q1	99Q4	Dickey	* Redesigned Organic DB which is now part of Dbhydro (98Q4). Ground water DB on target for 99Q2. * Regulation is continuing the redesign of the Regulatory DB. (99Q1 to 02Q3) * CLM is creating a shared data model of Lamis DB.	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
								* ERD continues to develop and enhance its Oracle DB for Everglades, Okee., and Kissimmee research.	
IM	3	165	Perform a cost/benefit study to determine the feasibility of data warehousing at the District. (Major IV-11)	Agree. Initial study in DTA complete, additional analysis in Process. <i>Note: formal study not been done. Not in FY99 plans.</i>	97Q2	?	Brown	* Currently using this concept in Data Management Div. * Do not have warehouse tools with GUI interface in other areas.	In Process
MOD	3	90	The District's OO experience is in its infancy. The priority at this time should be to manage the prototyping effort carefully, and capture the lessons learned in the prototype so they can be applied to future OO developments. (Minor I-76) 92. DEEM/DIAS should be used as a prototype for an integrated modeling environment until commercial off the shelf (COTS) products are available from software vendors. In order for the District to commit its business processes to OO, it needs to carefully consider how the OO environment will be supported long-term. (Minor I-76)	Agree.	97Q3	?	Obeysekera	* District staff still lacks training to manage the prototyping carefully but are doing the best they can, given other priorities. * DEEM effort was dropped sometime back due to lack of success.	In Process
MOD	2	93	Continue investigating object-oriented technologies to be prepared for future opportunities, including the benefits of the OO paradigm and parallel processing which include the prospect of increased hardware utilization. Additionally, the District should keep abreast of OO standards which promise to support the platform-	Agree.	96Q4	?	Obeysekera	* Object Oriented routing model developed. * SFRSM under development. * No other future steps are planned or budgeted due to	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			independent distributed processing of objects. (Minor I-77)					other high priority. * Parallel processing will be investigated.	
OA	2	74	Implement the document database management system included in the publishing software solution to assist in the management of the documents published. (Major I-64)	Agree. Planning is evaluating Mgt. Software to include Document Mgt. for Publishing.	96Q4	?	Miessau	SUN ultra1 workstation "mystic" has been purchased, to be utilized as a UNIX document management server. Xerox software upgrades were requested & budgeted for in fy98 but due to the late arrival of the machine, Solaris upgrades and root permission problems, the machine could not be implemented as a server. We are currently communicating with Xerox for a new version of the server software for evaluation purposes. Joel Vanarman has local root permission on "mystic" and will attempt to install and administer the software. Disk space is an issue. A local UNIX hard drive may be necessary to complete this task.	In Process
OA	3	77	Analyze alternatives to improve the document publishing workflow that starts with the authors and ends with graphics arts professionals and integrate this analysis into the implementation plan for the new	Agree. Planning is evaluating Mgt. Software to include Document Mgt. for Publishing.	96Q4	?	Miessau	Two Technical Editor positions were approved for fy99 and have been posted. Two NT PC's have been purchased and installed. FrameMaker publishing	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
			system. (Minor I-65)					software has been installed on the machines for these positions. These positions should be filled within the next 60 days (Debra Bennett, hiring manager). After which publishing workflow progress should be made in assisting the PLD staff develop templates, coordinate publishing activities and centralize the publishing process for PLD documents.	
OA	3	82	Coordinate the automation of workflows and digitizing of paper-based forms in order to enable business processing reengineering. (Minor I-68)	Agree. Digitizing in use but workflow has not been funded.	97Q1	00Q3	Hall	Included in New I.S. Strategic Plan. ("Key Findings")	In Process
OA	3	84	Develop an Executive Office correspondence tracking system that will allow the Executive Office to send correspondence to appropriate individuals for review and response. (Major I-73)	Agree. Budgeted in FY97.	97Q1	99Q2	Ricketts	See Item#83. New Web-enabling feature for Document management may be used. This software is scheduled for installation in December 1998.	In Process
OA	2	86	Develop a technical architecture for complete implementation of electronic document management systems across the District. (Minor I-73)	Agree. Initiate in conjunction with #83.	97Q2	99Q1	Ricketts	* Literature search was conducted. * Brainstorming session conducted in February 1997 on District needs for document management. * Draft document & design	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
								presented to electronic publishing committee. * Presentation developed to convey issues and terminology to the users for feedback.	
ORG	3	113	Existing staff should prioritize security monitoring. This function has been assigned to Computer Support staff but its execution is inconsistent. (Major I-91)	Agree.	97Q1	00Q1	Edmondson	Refer to Computer Security Audit # 98-03 recommendation 2.	In Process
ORG	1	130	The District needs to develop an enterprise-wide strategic plan which can be used by the ISO when creating the District's Strategic Information Systems Plan. (Major II-20)	Agree.	96Q3	99Q4	EXO/ Campbell	* Planning Department is currently working on District Strategic Plan. * Also, ITD is working on Strategic I.S. Plan with DRAFT in Jan. 1999.	In Process
OS	2	100	Perform a cost /benefit analysis concerned with the "build or buy" decision for hardware components which are currently fabricated or customized at the District. (Major I-79)	Agree.	98Q1	99Q2	Betzhold	A working group was formed in November 1998 to study and make recommendations with regard to future DAQ needs. This working consisted of ITD, WRE, & OMD. The project has been renamed Water Data Management Project (WDMP).	In Process
OS	1	148	Upgrade network cabling standards to Category 5 wiring to accommodate higher bandwidth. (Major II-32)	Agree.	96Q2	99Q3	Edmondson	Installation of cabling in process in both B-1 and B-50.	In Process

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
OS	3	166	Review the inventory of the data audit to confirm the usefulness of the identified databases and investigate new data collection technologies (e.g., satellite, radar, digital photography, remote data collection devices) which could reduce labor-intensive data collection activities. (Major IV-12)	Agree. <i>Note: ESDA lead group for completion of activity.</i>		00Q1	Turcotte	Inventory of data currently in process to be completed FY 99Q2. ESDA currently investigating District new technology for data collection.	In Process
TR	3	12	Develop a formal training plan for the District's modeling professionals. (Minor I-9)	Agree.	97Q2	?	Obeysekera	Again, higher priority efforts ("Restudy") have prevented us from devoting adequate time for training. Modelers have had limited training.	In Process
TR	2	127	Technicians and help desk personnel should have access to an integrated network-based help desk/asset database system to readily determine physical location, analyze hardware/software configurations and expedite problem identification, tracking and resolution. (Major II-13)	Agree.	95Q1		Weaver	Purchased in 98Q2 Seagate suite of software to "poll" systems for configuration of hardware and software. Asset management system purchased in 97Q4.	In Process
WEB	2	38	Implement a modern infrastructure for external/public electronic access to District data. (Major I-29)	Agree. This solution will include REMO.	96Q4	99Q4	Edmondson	Oracle/Web server project currently underway.	In Process
CAD	3	62	Create a CADD user group/forum that can address District-wide CADD planning and direction issues. (Minor I-52)	Agree.			Bodre		Not Initiated
GIS	2	28	Improve the integration between GIS, remote sensing, and modeling. (Minor I-23)	Agree. Initiate after #6.	97Q1	97Q4	Edmondson	Currently no activity in this area.	Not Initiated
GIS	2	30	Develop GIS Plans to cover the implementation of this tool in each user department. (Minor I-23)	Develop a GIS plan.	99Q2	99Q4	Edmondson	May be included in new District Strategic I.S. Plan.	Not Initiated

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Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
GIS	3	37	Evaluate the integration of multi-media technologies with GIS. (Minor I-24)	Agree.	97Q3	98Q4	Edmondson	Currently no activity in this area.	Not Initiated
GIS	3	64	Reevaluate the current functionality of the coordinate geometry (COGO) tools used at the District. (Minor I-52)	Agree. Funds budgeted During FY99	99Q2	99Q3	Bodre	Have budgeted funds in FY99.	Not Initiated
IM	3	25	Investigate opportunities to integrate data from LGFS into the Construction Project Management database and Budget Division's database. (Minor I-16)	Disagree. Move Project Management related data to more accessible location.			Bodre	Will not be done at this time.	Not Initiated
MOD	2	9	Develop standards for source code control and data access District-wide. (Major I-9)	Agree. <i>Note: Could be considered as "In Process" for District production application source code.</i>	97Q3	98Q1	Edmondson	* Data access controls are in place. * No District wide controls for source code. (Some controls exist for applications such as LGFS, Ross, Dbhydro, Permits, ...)	Not Initiated
MOD	3	91	A forum should be created for individuals within the District to learn more about OO activity and gather feedback from departments. (Minor I-76)	Agree.	97Q3	?	Obeysekera	High priority modeling efforts have prevented us from devoting time for this item. Recommend using the Modeling Users Group, MUG, as the forum.	Not Initiated
OA	3	87	Refine existing cost/benefit analyses and develop new analyses where appropriate. (Minor I-73)	Agree. Initiate after #86 is completed.	99Q1	00Q3	Ricketts	Adequate resources have not been allocated to move this initiative forward.	Not Initiated
OS	3	115	Develop and implement appropriate password aging and expiration software across the District. (Major I-91)	Agree. (Budget for FY98.)	99Q1	99Q4	Edmondson	See # 114. (The staff is evaluating and monitoring the "market" for possible "single sign on" solutions.)	Not Initiated

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
OS	2	147	Implement stricter network security standards including password aging, account lockout, minimum password length, use of alphanumeric passwords and stricter dial-in security standards. (Major II-31)	Agree.	99Q1	99Q3	Edmondson	See # 114. (The staff is evaluating and monitoring the "market" for possible "single sign on" solutions.)	Not Initiated
TR	2	142	Cross training for critical positions, such as UNIX and VAX administrators, should be implemented to ensure consistent support and redundancy of skills. (Major II-29)	Agree.	97Q1	97Q4	Edmondson	Currently use "depth" of staff to support critical positions. (No formal cross-training program.)	Not Initiated
CAD	3	63	Implement an archiving system to manage CADD drawing file storage, retrieval, and version control. (Minor I-52) 66. Implement security measures to ensure the integrity of documents. (Minor I-52)	Agree. New software arrived 8/98	99Q1	99Q3	Bodre	New NT upgrade just arrived. PO 805109	On Going
GIS	3	32	Evaluate alternatives to improve the current method of COGO (Coordinate Geometry, a data format used by surveyors) input to Arc/INFO and ArcView. (Minor I-23)	Agree. Will depend on planned move from Workstation to NT for gis.	98Q1	99Q4	Bodre	New NT arrived & installed - not all being used because of network drops not available.	On Going
IM	3	94	Obtain assistance from parties not currently involved with the project to reevaluate the current state of CROS. (Major I-79)	Agree. <i>Note: OMD CROS Evaluation Contract RFP (C-9569, C-10624) issued (6/30/98, 12/21/98) will address.</i>	96Q3	99Q2	Vyhnaneck	Two RFP's and a SOW had been issued. Responses to the first RFP were consider non-responsive as the Contractors recommended product solutions rather than performing the required evaluation. The second attempt was to issue a SOW to the District's Prequalified IS Vendors. This did not result in qualified personnel being	On Going

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
								submitted by the vendors. The third attempt was to reconvene the RFP Development Committee and revise the RFP. Responses in the range of \$176K - \$300K exceeded the original budgeted amount of \$25K for the project. Staff is presently investigating alternatives	
IM	2	98	A shared data model encompassing data collected in OMD, WRE, ERD and other vital sources should be completed to support the data and information requirements of the Operations Division. (Major I-79)	Agree, District Contract Technical Integration of Water resource Management C-9150 planned execution date 9/9/98 will address this subject.	98Q3	99Q3	Hall	Contract approved in September 1998 by Gov. Board. (Kent Loftin)	On Going
IM	2	99	Clearly define future development efforts, the goals they will attain, the associated costs, and the project's date of completion. (Major I-79)	Agree. <i>Note: OMD CROS Evaluation Contract RFP (C-9569, C-10624) issued (6/30/98, 12/21/98) will address.</i>	98Q1	99Q2	Vyhnaneck	Two RFP's and a SOW had been issued. Responses to the first RFP were consider non-responsive as the Contractors recommended product solutions rather than performing the required evaluation. The second attempt was to issue a SOW to the District's Prequalified IS Vendors. This did not result in qualified personnel being submitted by the vendors. The third attempt was to reconvene the RFP Development Committee	On Going

1996 Technology Assessment Recommendations Matrix

Group	Pri.	#	Recommendation (Type & Page number)	Staff Recommendations	Start (FY)	Complete (FY)	Contact: Lead Group	Documentation: Provided	Status
								and revise the RFP. Responses in the range of \$176K - \$300K exceeded the original budgeted amount of \$25K for the project. Staff is presently investigating alternatives.	
IM	3	125	The District should update its enterprise-wide procurement standards for PC's and communicate the underlying rationale to the departments and end users. (Major II-12)	Agree.			Hall	This is done each year with each Department/Office as part of the Budget Development and Review process.	On Going
IM	2	126	The District should analyze the physical makeup of the installed base and map the flow of hardware through the organization. (Major II-13)	Agree.			Edmondson	Departmental ISL's and Computer Coordinators analyze the "makeup" up their equipment as part of the annual budget development process.	On Going
IM	3	167	Complete a data audit of current databases to determine District data requirements. (Major IV-12)	Agree.	97Q2	?	Brown	* Ongoing process of activities to look at other sources such as USGS, COE, ... * Adding new types of data and new sources as required by District projects.	On Going
IM	3	169	Identify potential data providers. Continue to pursue cost sharing agreements with potential data providers. (Major IV-12)	Agree.			Turcotte	District currently has agreements with USGS, COE, ENP, . . . Contracting stream flow measurements.	On Going
MOD	3	8	Model development should be accomplished utilizing trained programmers working with the modelers to develop more	Agree.	1998	?	Obeysekera	A senior programmer was hired for this position & moved to TRT division in	On Going

1996 Technology Assessment Recommendations Matrix

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			efficient code for the District's models. (Major I-9)					PLD. (Other higher priority jobs.)	
MOD	3	13	Develop a procedure to review the models, datasets, or utilities used by District modelers, enter them into the archive, and maintain them once stored. (Minor I-10)	Agree.	97Q3	?	Obeysekera	There has not been a mandate to do this, except voluntarily through informal efforts such as MUG, inter-departmental model group etc.	On Going
MOD	3	14	Identify, evaluate, and acquire 3-D scientific visualization software to be integrated with model output for post-processing analysis. (Minor I-10)	Agree.	97Q1	?	Obeysekera	* Acquired AVS software. * Limited testing now done. * Used for NSM post processing. * Changes to platforms is complicating the implementation.	On Going
MOD	2	88	The current OO effort should be tracking clearly defined, measurable objectives. Measurements should be developed to evaluate the success or failure of the OO prototype. (Major I-76)	Agree.	1997	2000	Obeysekera	Efforts are being made to use OO models in actual projects. ORM application for operational planning is a good example.	On Going
MOD	3	89	A smaller scope and shorter range goal for OO should be developed, such as performing OO modeling for one module of the SFRSM. (Major I-76)	Agree.	97Q3	?	Obeysekera	* ORM has been developed. * HSE model of SFRSM is near completion.	On Going
OA	2	71	Assign responsibility for District-wide coordination, evaluation, and support of internally developed office automation utilities. (Minor I-58)	Agree. Responsibility assigned on a per project basis.	97Q1	?	Brown	Done on a "case-by-case" basis, depending on expertise in area and the complexity of the application	On Going
OA	3	85	Coordinate imaging and workflow efforts with BPR initiatives which may identify	Agree.	97Q2	98Q2	Ricketts	Enterprise Design contacts Information Services when	On Going

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			new areas of opportunity. The BPR effort should also provide cost/benefit information necessary in determining implementation decisions for EDMS technology. (Minor I-73)					design issues provide opportunities for document imaging to improve a process under review.	
ORG	4	2	Establishment of an ITSC. (Major 7) 131. An Information Technology Steering Committee (ITSC) made up of department heads should be established and implemented at the District level. The ITSC should be charged with reviewing and prioritize technology-related projects. (Major II-20) 154. Install an Information Technology Steering Committee to review and prioritize all Information Technology related projects. (Major IV-5)	Disagree. Use EMG/EC instead.	97Q1	?	EXO/ Campbell	* Information Systems issues taken to Executive Counsel or Executive Management Group weekly as need. * I.S. projects reviewed and prioritized by CIO in Executive Office.	On Going
ORG	2	138	The ISLs must be informed sufficiently in advance of changes in the technological environment in order to facilitate the transition for their Department. The ISL should be charged with organizing training, developing new procedures and facilitating the IT implementation for their Departments. (Major II-25)	Agree with advance notice but training, development and implementation will be performed as a partnership. Initiate after #133.	97Q1		Weaver	Regular monthly meetings with ISL's and Computer Coordinators. Training and District processes are developed as organizational goals/objectives not departmentalized.	On Going
OS	2	18	Continue current trend to automate the data collection process by expanding ARDAMS to all monitoring stations equipped with electronic dataloggers. (Minor I-10)	Agree. <i>Note: Dependent on Funding and WDMF Recommendations</i>	93Q3	?	Betzhold	The WDMF working group will be addressing these issues to determine the cost benefit of converting all data logger sites for RF access. Since this project began in 1993 over 200 data loggers (almost half) have	On Going

1996 Technology Assessment Recommendations Matrix

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								been added to ARDAMS.	
OS	3	123	The District should perform this assessment [computer usage classification] once annually recognizing that technology and job functions will change with time. (Major II-10)	Agree. Each year we should evaluate our hardware platform and minimum standards.			Hall	Part of the budget development process.	On Going
TR	3	105	Continue to evaluate the potential of new technical training technologies to include: networked based training, computer-based training augmented by multi-media delivery, and video-based training. (Major I-88)	Agree.	96Q4		Weaver	Continuing.	On Going
TR	3	109	Continue to use standardized training materials. Vendors can provide updated course materials more cost effectively than they can be created in-house. (Minor I-88)	Agree. <i>Note; We have the option to customize materials as necessary to match our environment.</i>	96Q4	97Q4	Weaver	Ziff-Davis provides standardized training materials on CD with District's subscription to service. (See item #108.)	On Going